AMENDMENTS TO THE SPECIFICATION

Replace the paragraph at page 1, lines 3 and 4, with a new paragraph as follows:

Technical Field

This invention relates to a method and apparatus for heat ablation of the internal wall of hollow organs.

Replace the paragraph at page 1, lines 5-22, with a new paragraph as follows:

Background of the Invention

Microwave hyperthermia treatments have for many years been used for treatment of cancers. It is known that the raising of the temperature of cells to above about 43° to 45°C for sufficient time causes necrosis, and temperatures below about 41.5°C generally do not affect cells. External hyperthermia treatments for the treatment of Barrett's Oesophagus, a pre-malignant condition of the oesophagus cannot be used because of the anatomical site of the oesophagus. However, intracavitary hyperthermia allows the applicator to touch the lesion directly, with almost all of the microwave energy being absorbed by the area surrounding the applicator, sparing the normal tissues from excessive exposure to heat. Work to improve the heating pattern of an oesophageal applicator is described in Int.J.Hyperthermia 1991 Vol. 7 No. 4 pp577-586 Liu et al. This describes a microwave applicator shrouded in a plastic tube of 1 cm diameter. This type of system is incapable of treating the entire affected area of the oesophagus at the same time.

Replace the paragraph at page 3, line 2-3 to page 4, line 15 with a new paragraph as follows:

Summary of the Invention

Accordingly, in a first aspect, the present invention provides an apparatus for heat ablation of the internal wall of a hollow organ. The apparatus comprises a catheter having proximal and distal ends, and having at least one internal lumen. A balloon is located at the distal end of the catheter and attached to the said lumen, whereby the balloon may be filled with liquid from the proximal end of the catheter. A tuned microwave antenna is located in the region of the balloon for radiating microwave energy at a predetermined frequency to heat the balloon to a temperature suitable for heat ablation of the hollow organ wall tissue. A waveguide is attached to the microwave antenna. The wave guide supplies microwave energy to the microwave antenna. A temperature probe is also provided to measure the temperature of the balloon. A supply of a liquid is provided for filling the balloon via the said lumen. The liquid has a dielectric constant of from 41 to 63 and a conductivity of from 1.0 Sm^{-1} to 1.5 Sm^{-1} at said frequency and 50 °C. High water content tissue, which is the type of tissue to be treated, has a dielectric constant of 53 at a microwave frequency of 433 MHz, and a dielectric constant of 51 at 915 MHz. It also has a conductivity of 1.18 Sm^{-1} at 433 MHz and a conductivity of 1.28 Sm^{-1} at 915 MHz. The dielectric constant of the liquid employed in the apparatus is preferably within 20% of the average of the dielectric constant values at the two frequencies and the conductivity of the liquid employed is preferably within 20% of the average of the conductivity values at the two frequencies. The matching of the dielectric constant and conductivity of the liquid used with the dielectric constant and conductivity of the high water content tissue allows improved matching of the microwave antenna and the waveguide, thus reducing heating of the waveguide.

Replace the paragraph at page 5, lines 15 to 23 with new paragraphs as follows:

Brief Description of the Drawings

The invention will be further described with reference to the preferred embodiments shown in the accompanying drawings, in which:

Figure 1 shows a schematic of the balloon of the preferred embodiment.

Figure 2 shows a schematic of the balloon of figure 1 in position in the oesophagus.

Detailed Description